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ABSTRACT

An investigation of the General Educational Development (GED) tests is presented. Objectives of the investigation include: (1) to assess the validity of the tests for admission of nonhigh-school graduates to higher education, (2) to describe the backgrounds and experiences of nontraditional students who enroll in college on the basis of their GED test scores, and (3) to identify the advantages created by the granting of the academic high school credit by means of the GED tests. A questionnaire on educational background, experiences with the GED current status at college, attitudes toward various issues, and future plans was mailed to each or 1,367 junior and senior college students. The average subject was a 28-year-old male veteran who learned about the program in the armed services. Results include: (1) The performance of nontraditional students was significantly higher than that of graduating high school seniors on all GED tests except English; (2) Students who enrolled in senior colleges earned slightly higher scores on all tests than those enrolled in junior colleges; and (3) The relatively low intercorrelations of the tests suggest that each test is measuring a unique skill. The results suggest that the GED tests are useful for the admission and guidance of college candidates who have not formally completed high school. Recommendations include: (1) Colleges should encourage nonhigh-school graduates to take the GED and to present satisfactory scores as evidence of ability to undertake college-level work, and (2) A greater amount of publicity on the GED should be aimed at those segments of the civilian population that are most likely to profit from taking the tests. (CK)

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PR-72-3

VALIDITY OF THE TESTS OF GENERAL EDUCATIONAL DEVELOPMENT FOR ADMISSION OF NONHIGH-SCHOOL GRADUATES TO HIGHER EDUCATION

Amiel T. Sharon

March 1972

EDUCATIONAL TESTING SERVICE
PRINCETON, NEW JERSEY

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Educational Testing Service

1972

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BACKGROUND

Introduction

The Tests of General Educational Development (GED) were developed in 1942 by the United States Armed Forces Institute in order to provide the veterans of World War II a means to readjust to civilian life as they resumed their educational and vocational plans. The GED tests provided the nonhigh-school graduate an opportunity to obtain a high school equivalency certificate and in certain cases college credit. Since 1946 the tests have come under the policy direction and supervision of the Commission on Accreditation of Service Experiences (CASE) of the American Council on Education. High school equivalency certificates issued on the basis of satisfactory performance on the GED came to be accepted as a regular high school diploma by institutions of higher education, business organizations, and civil service commissions. The college-level GED tests which made it possible for college-bound veterans to obtain academic credit were discontinued in 1960 and later replaced by the General Examinations of the College-Level Examination Program.

The high school level GED battery consists of five tests in the following areas:

Test 1: Correctness and Effectiveness of Expression

Test 2: Interpretation of Reading Materials in the Social Studies

Test 3: Interpretation of Reading Materials in the Natural Sciences

Test 4: Interpretation of Literary Materials

Test 5: General Mathematical Ability

For the sake of brevity the five tests will be called English, Social Studies, Natural Sciences, Literature, and Mathematics respectively.

The GED tests are designed to measure knowledge acquired in the typical general educational programs offered in secondary schools. Rather than

emphasizing knowledge of details, the tests concentrate on the ability to generalize concepts and ideas, to comprehend exactly, and to evaluate critically. The tests also seek to determine the extent to which informal educational experiences have had a long-term impact equivalent to that which might be the result of a good formal education. Thus, by means of these tests, individuals who have not formally completed their secondary school education may be certified as having the equivalent of a high school diploma.

While the original purpose of the GED tests was to help the veteran who did not complete high school adjust to civilian life, the majority of those tested today are civilians. In the calendar year of 1970, there were 331,534 individuals tested at 1,711 centers throughout the United States (GED Testing Service, 1971). The average age of all those tested in 1970 was 29.1. The mean number of years of previous schooling was 9.7. More than one-third took the tests in order to qualify for higher education.

The GED tests are administered primarily at official centers designated by the various state departments of education. In addition, there are centers in state and federal correctional institutions and Veterans Administration Hospitals which provide individuals at these institutions an opportunity that might otherwise not be available to them--to obtain formal recognition for knowledge gained outside of school. The issuing of high school equivalency certificates on the basis of GED performance is also under the jurisdiction of the various state departments of education. Recommendations are made by CASE, however, to the departments of education as to the minimum critical scores for awarding equivalency certificates. These critical scores were established on the basis of national norms and are equivalent to the score which approximately 20 per cent of the high school norms group failed to achieve.

The significance of the GED tests for higher education lies in their extensive use in the admission of the nonhigh-school graduate to college. A CASE survey of approximately 2200 colleges and universities revealed that over 1600 institutions accept satisfactory GED test scores as evidence of ability to undertake college work. The GED policies of 1,728 of these institutions have been published by CASE (1970).

Previous Research

Most of the previous studies on the GED were conducted in the 1940's and the 1950's. Early research on the battery has generally shown that it is a fairly accurate predictor of college success. Dressel and Schmid (1951) evaluated numerous investigations relating to the validity of the examination and concluded that a large number of individuals who passed the tests were successful in college work or jobs which ordinarily require a high school education. Tyler's (1954) fact-finding study, which examined data from a large number of different institutions, was partially directed toward determining the validity of the GED as an instrument of admission to higher education. Tyler concluded that substantial numbers of GED matriculants were successful in college and, although in general their scholastic achievement was not quite as high as that of high school graduates, the differences were surprisingly small. A special committee which evaluated the Tyler study made the following recommendation in relation to the use of the GED as an instrument of college admission,

> "Further studies are needed to determine whether the weaknesses of students who fail to complete college after being admitted on the basis of GED Tests are essentially different from the weaknesses of students

who fail to complete college after being admitted on the basis of the formal high school diploma."

Objectives

Although previous research has supported the use of the GED in the admission of nonhigh-school graduates to college, there is a need for a continuous reexamination of the validity of the battery and the procedures of the testing program. Previous investigations of the GED had a number of limitations which made it difficult to evaluate the tests comprehensively. The studies were invariably conducted within single institutions, thus limiting the number of subjects that could participate in any given study. Furthermore, because of institutional diversity in populations, admission standards, and grading practices, it was difficult to generalize across institutions and to compare the results of these studies. A third reason for the need to reassess the validity of the GED battery is that there has been a shift in the GED examinee population since the original validity studies were conducted. For example, in 1954 about 61 per cent of those tested were veterans, whereas in 1966 (the last year for which the data were compiled) less than one-fifth of the examinees were veterans. In addition to the changes in test candidate population, there have been marked changes in higher education over the years. Increased curriculum flexibility and the growth of junior colleges are two of the significant changes that have taken place.

This study had three major objectives. The first was to determine the validity of the GED battery as an instrument of admission to a variety of institutions of higher education. The second was to describe the backgrounds

and experiences of nonhigh-school graduates who enroll in a college on the basis of their GED scores. The final objective was to describe the advantages and problems created by granting academic credit by examination by means of the GED tests.

Problems with Initial Plan

The current study was originally part of a larger proposal by Educational Testing Service to study the validity, advantages, problems and impact of academic credit by examination using the GED tests and the General Examination of the College-Level Examination Program (CLEP).

Because at the time this study was initiated a sufficient number of students who had received CLEP credit could not be identified, the CLEP part of the study was cancelled. Institutions accepting CLEP candidates in large numbers were unable to cooperate in the study. It was decided to continue with the GED part of the study, because a substantial number of nontraditional students had been identified at institutions which agreed to cooperate. Furthermore, there was a good possibility of increasing the student sample size since there was evidence that many institutions are enrolling nonhigh-school graduates on the basis of their GED scores.

Yet other problems beset the original study. Several types of data could not be obtained from colleges or from students. Very few students were willing to attend special testing sessions. The study was not approved until the beginning of the fall semester of 1969, and by then it was too late for making arrangements for testing at many colleges. Furthermore, institutions began to participate on different dates and provided information on students admitted in different semesters.

Thus, the original proposal had to be modified to conform to the reality existing at colleges so that the necessary data for a validity study could be collected. A detailed description of the data-collection procedures is given in the next section.

METHOD

Institutional Sample

The primary sampling unit for the study was the collegiate institution admitting substantial numbers of candidates on the basis of GED scores. Although the institutional population of interest included all institutions of higher education in the United States, for a number of reasons it was not feasible to select a representative sample of this population. The procedure used for choosing the colleges was based on the premise that the study could be conducted only if data could be obtained on a sufficient number of GED students who were actually enrolled in a college. Although a recent CASE survey has established that most of the nation's institutions of higher education accept satisfactory GED scores as evidence of ability to undertake college-level study, there was reason to believe that GED candidates in substantial numbers were enrolled in only a limited number of colleges. Thus, it was necessary to restrict the sample institutions to those who were believed to be admitting significant numbers of GED students.

A number of approaches were used in the identification of appropriate institutions for the study. One approach was to determine which institutions receive large numbers of CLEP score reports from the United States Armed Forces Institute (USAFI). It was assumed that CLEP and GED candidates would be attracted to the same institutions because both tests are used to grant academic credit by examination. Another approach was to ask state GED administrators for suggestions regarding potential institutional participants in their state. A final procedure involved the examination of college

catalogues or bulletins to determine if the GED is mentioned as a requirement for admission of the nonhigh-school graduate.

A total of 111 colleges and universities identified by the foregoing approaches were invited to participate during the period of September 1969 to November 1970. Forty institutions agreed to cooperate in the study and supplied the data requested. These institutions (listed in Appendix 1) include 12 junior colleges and 28 four-year or senior colleges. The 71 colleges that were invited but did not participate were classified according to reason given, if any, for not cooperating:

Number of Institutions	Reason for Not Participating
37	No reply to letter of invitation, follow-up letter, or telephone call
12	Insufficient or no GED students enrolled
10	Lack of time, personnel, or student interest
6	Data not retrievable from records
3	Campus unrest
2	Agreed to participate but sent no data
1	Unusable data

The 40 institutions that cooperated in the study were not necessarily expected to be a representative cross-section of the nation's colleges and universities. The extent to which the sample institutions varied in their relevant characteristics is indicated in Table 1. The sample appears to be most unrepresentative of U.S. institutions of higher education in type of control, with only 10 per cent of the colleges being under private

Table 1

Characteristics of Institutional Sample

Variable	Number of Colleges	Per Cent
Control		
Public	36	90
Private	4	10
Location		
Urban[a]	21	52.5
Nonurban	19	47.5
Region[b]		
East	12	30
Northcentral	12	30
South	9	22.5
West	7	17.5
Selectivity (% accepted)[c]		
0-50%	1	2.5
51-60%	2	5
61-70%	2	5
71-80%	11	27.5
81-90%	5	12.5
91-100%	9	22.5
Unknown	10	25.0
Size		
Less than 5,000 students	13	32.5
5,000 students or more	27	67.5
Type		
Junior college	12	30
Senior college	28	70

[a]In a city of 50,000 or larger or in a metropolitan area.

[b]U.S. Census regions.

[c]Junior college data from: Gleazer, E. J. (Ed.), American Junior Colleges, 7th edition, American Council on Education, 1967. Senior college data from: Cass, J., and Birnbaum, M., Comparative Guide to American Colleges for Students, Parents and Counselors, New York: Harper & Row, 1969.

control. Since private colleges may not be providing educational programs under schedules and circumstances that accommodate to the needs and interests of GED candidates who tend to be older and frequently have family and job responsibilities, the small number of such institutions in the study is not surprising. Further, the generally higher tuition of these institutions may be a barrier to GED candidates. The relatively small number of colleges from the West participating in the study is primarily because in the State of California any nonhigh-school graduate may be admitted without an equivalency certificate. On the whole, the sample colleges are not very selective. Only one of the colleges rejects more than 50 per cent of its applicants, while nine colleges accept all, or almost all, of their candidates. More than half of the colleges are large (5000 students or more) institutions or located in urban areas.

Student Sample

Data Collection

The participating institutions were requested to provide the name, address, date of admission, GED test scores, Scholastic Aptitude Test (SAT) scores (if any) and cumulative grade-point average for all students admitted with GED test scores generally within the two-year period prior to the date of the request. Data were provided, however, for students who enrolled in college over a period of several years. Three per cent of the student sample enrolled in college prior to 1967, one per cent in 1967, three per cent in 1968, 42 per cent in 1969, and 51 per cent in 1970. The grade-point averages of students were requested, in most cases, from one to two years after the admission of the students to the college.

Several colleges did not provide complete information for all their students. In some cases institutional records indicated that a student had taken the GED but his scores were not available. The scores of many, but not all, such students were obtained from the appropriate state departments of education. GED scores could not be determined for 159 of the 1,367 students who had been identified at the 40 participating institutions. Grade-point averages were not reported by the colleges for 40 students.

Each student in the sample was mailed a questionnaire requesting various biographic and demographic information, including information on experiences with the GED, and attitudes toward a variety of current social issues (see Appendix 2)[1]. Follow-up postcards, requesting return of the questionnaires were sent to most of the nonrespondents. Returns were received from 538 students or 39 per cent of the total sample. The possible effect of the nonrespondent bias on the results can be evaluated by the comparison of the GED scores and grade-point averages of respondents and nonrespondents indicated in Table 2. The GED scores are on a scale ranging from 20 to 80 while the grade-point average is on a five-point scale where A = 4 and F = 0. The nonrespondents scored an average of one scale point lower on each of the tests than did the respondents. Although the mean differences are statistically significant for the English and Social Studies tests, they are not large enough in relation to the standard deviation to be of practical significance. The same can be said for the grade-point average difference which is statistically significant.

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[1]Many of the items in the questionnaire were taken from the American Council on Education's Student Information Form, which was used as part of a 1968 survey of freshmen entering a representative sample of American institutions of higher education.

Table 2

Means and Standard Deviations of GED Scores and Grade Point Averages for Questionnaire Respondents and Nonrespondents

Test	Respondents			Nonrespondents		
	N	Mean	SD	N	Mean	SD
English	497	51.2	7.3	710	49.6	7.2
Social Studies	496	56.1	7.7	710	55.0	7.9
Natural Sciences	497	56.5	7.4	711	55.8	7.1
Literature	494	56.2	7.6	710	55.4	7.7
Mathematics	495	53.5	7.4	710	52.8	7.4
Grade Point Average	417	2.42	.74	506	2.18	.87

Visits by the research staff were made to four of the participating colleges for the purpose of interviewing 30 GED students. These in-depth, structured interviews, which took an average of one hour, consisted of a series of open-ended questions concerning the student's educational background, experiences with the GED program, experiences in college, and future plans. The complete interview schedule is given in Appendix 3.

Status of Students at College

The GED students were at various stages of their educational careers at the time they completed the questionnaire. Most were either freshmen (64 per cent) or sophomores (20 per cent). Five per cent were juniors, three per cent seniors, and two per cent had graduated from college.

Attendance at the colleges in which the students were enrolled at the time of completing the questionnaire was six months or less for 44 per cent of the students. Twenty-six per cent attended from 7 to 12 months, 13 per cent from 13 to 18 months, 7 per cent from 19 to 24 months, and 6 per cent attended two years or longer.

Only 41 per cent of the students were full-time students. Seven per cent attended about three-quarters time, 18 per cent about one-half time, and 25 per cent about one-quarter time.

Descriptive Profile of Students

The detailed description of the participating students which follows is based on the responses of 539 students who completed the questionnaire mailed to them. In the ensuing discussion, it will be assumed that this subsample is representative of all participating students, although it consists only of 39 per cent of the sample.

Whenever possible, the characteristics of the study sample will be compared with those of traditional college freshmen who were surveyed by the American Council on Education's Student Information Form during the fall of 1970 (American Council on Education, 1970). This group of freshmen represents the regular high school graduates who enroll in college within a short time after graduating from high school.

Sex. The sample consisted of twice as many males as females (67 per cent males versus 33 per cent females). The greater number of males may be related to the fact that 52 per cent of the students were veterans as compared to 3 per cent veterans in the regular college freshman population. The encouragement by the Armed Services to take the GED is likely to make a greater number of males aware of the existence of the tests.

Age. The median age of the subjects was 28 years, but ages ranged from 18 to 63 years. One out of five subjects was 40 or older. Since the average GED student is about 10 years older than the average regular freshman, age may be an important factor in explaining some of the findings of this study.

Race. The racial composition of the sample was similar to that of regular college freshmen. Eighty-eight per cent were white, six per cent were black and one per cent American Indian. Corresponding percentages in the regular freshman population are 89 per cent white, nine per cent black and one per cent American Indian.

Religious affiliation. The religious preference of the subjects was similar to that of the regular freshman population. Thirty-nine per cent were Protestants, 25 per cent Catholics, 2 per cent Jewish, 11 per cent of other faiths and 22 per cent without any religious preference. The regular freshman population consists of 39 per cent Protestants, 31 per cent Catholics, 4 per cent Jewish, 4 per cent of other faiths and 10 per cent with no religious preference.

Geographic distribution. The states of residence of the students were, in general, the states in which the participating colleges were located. Twenty-four per cent of the students were from Indiana, 16 per cent from New Jersey, 9 per cent from Missouri, 6 per cent from Massachusetts, and 5 per cent from North Carolina. Each of the other states accounted for less than 5 per cent of the student sample.

Attitudes and preferences. The GED students appeared to be more conservative in their attitudes in comparison to the traditional students, at least as indicated by their agreement or disagreement with certain

controversial issues. Forty-four per cent of the traditional students agreed with the statement "Students from disadvantaged social backgrounds should be given preferential treatment in college admissions" as compared to agreement by only 30 per cent of the GED students. On the other hand more GED students agreed with the statement "Most college officials have been too lax in dealing with student protests on campus" (73% GED vs. 58% traditional) and with the statement "College officials have the right to regulate student behavior off campus (23% GED vs. 17% traditional).

Although the preferences of traditional and GED students are in many respects similar there are some noteworthy differences. More traditional students than GED students think it important or essential to become an authority on a special subject in their field (67% traditional vs. 55% GED), to be successful in a business of their own (44% traditional vs. 33% GED) or to participate in an organization like the Peace Corps or Vista (20% traditional vs. 8% GED). On the other hand more GED students think it is important for them to have administrative responsibility for the work of others (32% GED vs. 22% traditional). Most of the differences can probably be accounted for by the difference in the average age of the two groups rather than by the unique attitudes and preferences of those who take the GED tests.

Educational Background

The most common aspect of the students' educational experiences is that they withdrew from formal schooling prior to graduating from secondary school. Withdrawal from formal education occurred at different grade levels. Eighty-eight per cent had one or more years of high school education while only 8 per cent have never attended high school. Of those who

have attended high school 16 per cent completed ninth grade, 28 per cent tenth grade, 29 per cent eleventh grade, and 14 per cent twelfth grade.[2] Although almost all subjects were school dropouts, their formal educational background was quite varied.

Many different responses were given to the question "Why did you drop out of school?" The most frequent reason given was financial difficulties, including the need to obtain a job, earn money, make a living, and help support one's family. It should be noted that many of the older subjects were adolescents in the post-depression era so that withdrawal from formal schooling for financial reasons at that time was not uncommon. Other reasons given for leaving school, in order of frequency mentioned, were boredom and disinterest, domestic problems, joining armed forces, frustration by school system, lack of motivation, immaturity, emotional problems, and lack of enough credits to graduate.

For many of the subjects there was a long period of time between leaving school and enrolling in a college. For 40 per cent of the subjects this period of time was ten years or more. Only 14 per cent entered college within one year or less after withdrawing from formal schooling.

Although most of the subjects' formal education was interrupted for a relatively long period of time, many have continued their education

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[2]Some of the subjects completed 12th grade but did not receive a high school diploma. This can occur when the high school senior lacks a course, does not make up a failed course, or fails to meet certain requirements such as passing comprehensive examinations.

One participating university system admitted a limited number of high school graduates on the basis of their GED scores because their high school grades were lower than those normally required for admission.

informally. Almost half of the subjects continued learning by some form of independent study. Other frequent forms of nontraditional education were on-the-job training, and correspondence instruction. The disciplines most commonly studied were technical and job-related and somewhat less commonly academic subjects. Recreational and religious courses were each taken by less than five per cent of the students.

The Decision to Go to College

The decision to go to college is for many individuals a highly complex one, usually influenced by several factors. The GED apparently played a major role in influencing some individuals to apply to college. Most of the students, however, decided to go to college before taking the tests.

Significant differences were found between the GED students and high school graduates in factors influencing decision to enroll in college. Parents or other relatives were a major influence on approximately one half of the traditional students but only on a fourth of the GED students. Academic reputation was a major influence on more traditional than GED students (43% traditional vs. 29% GED), but low cost influenced slightly more GED students (28% GED vs. 25% traditional). Other factors influencing the decision to enroll in college, such as guidance counselor and friends enrolled at college, were a major influence only on a relatively small proportion of GED students.

Educational and Career Plans

In terms of plans for formal education, the GED students set their sights only slighly lower than traditional students. In response to the question "What is the highest academic degree that you intend to obtain?",

38 per cent of the traditional vs. 32 per cent of the GED students indicated that they plan to obtain the Bachelor's degree. For the Master's degree, the corresponding percentages were 31 and 27 per cent, and for the Doctorate, 10 and 8 per cent.

The GED students tended to major in business, social sciences and health disciplines to a greater degree than the traditional students. Twenty-eight per cent of the GED students indicated that they were or will be majoring in business as compared to 16 per cent of the traditional students. In social sciences, there were 19 per cent GED majors vs. 15 per cent traditional students while in health professions (excluding M.D.) there were 12 per cent GED majors vs. 7 per cent traditional majors.

The most frequently chosen career by GED students was that of business followed by elementary or secondary school teaching and nursing. Business and teaching were also the two most frequently chosen careers by traditional students.

THE GED PROGRAM AND TRANSITION TO COLLEGE

Learning about the GED

Although the GED program is well-known to educators, it is relatively unknown to the general public, especially to those who may be helped most by taking the examinations. Relatively few of the subjects in this study indicated that they became aware of the GED through the mass media. Only one per cent learned about the tests by radio or television, two per cent by a poster in a public place, six per cent by a college catalog, and seven per cent by newspaper or magazine. On the other hand, 39 per cent learned about the tests in the armed services, 22 per cent through a friend or relative, and 20 per cent in some other manner. Since the Armed Services do such a good job in informing servicemen of the GED, it is not surprising that 52 per cent of the subjects in this study were veterans.

Motivation for Taking the GED

Although a nonhigh-school graduate may be aware of the GED program, he may not necessarily ever attempt to take the tests. The experience of dropping out of high school may shake the self-confidence of many of the high school dropouts. Without encouragement, it may be difficult for many competent individuals to attempt to obtain the high school equivalency certificate.

A tentative answer to why the GED tests were taken is provided by the 30 subjects who were interviewed. Half of these students stated that they took the tests specifically in order to be able to go to college. Others took the tests because they were urged to take them by parents or relatives or because they simply wanted a high school equivalency certificate. Almost

all of these students felt that the major effect of taking the tests was that they were able to enroll in a college.

Places for Taking the GED

Approximately 40 per cent of the subjects took the GED at a college testing center while 35 per cent took the tests in the military service. In spite of the fact that most GED testing centers are located in high schools, only 16 per cent of the subjects took the tests at these centers.

Reporting Test Results

The reporting of scores to GED examinees is one of the obligations of the agency administering the tests. Furthermore, the GED Examiner's Manual indicates that "when test results are sent to an examinee, they should be accompanied by a letter that indicates the degree of success achieved on the tests." It is apparent, however, that not all students are receiving their scores, and many are not receiving interpretive information. One out of ten students indicated that they never knew the scores they obtained on the test, while three out of ten stated that they did not receive interpretive information with their scores. Of those who were able to evaluate their scores, most performed better than expected.

In the absence of interpretive information, some students devised ingenious methods of evaluating their relative performance. For example, one candidate compared her scores to those of several of her classmates who were enrolled with her in a special GED refresher course. Unfortunately, such informal methods of comparison can be frequently misleading.

Admission to College

It may be hypothesized that if the GED candidate applying for admission to college is viewed, because of his withdrawal from high school, as a high risk then various hurdles and barriers may be placed before him by the college. The present study sought to determine the extent to which college admission requirements differ for nontraditional students and regular high school graduates.

All but five students participating in this study had scores at or above the level recommended by CASE for a high school equivalency certificate[3]. This does not mean that all those scoring above the recommended level actually obtained a certificate. Seventeen per cent of the students stated that they did not obtain an equivalency certificate.

Most students were required to present the equivalency certificate for admission to college. Sixty-nine per cent indicated that the certificate was one of the admission requirements, 13 per cent indicated it was not required, and 17 per cent did not know.

Some candidates were required to present scores of tests other than the GED. The battery of the American College Testing Program (ACT) was required of 26 per cent of the candidates while the SAT was required of 21 per cent of the students. Nevertheless, the GED was the major criterion for the admission of the student in the sample.

The CASE recommends to colleges that "critical scores on the tests be set at a point which is comparable to the academic selective requirements

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[3]The CASE recommends a minimum score of 35 on each examination or an average of 45 on all five examinations.

for admission of high school graduates" (CASE, 1971). Although data gathered in this study do not directly indicate whether CASE's recommendations are being followed, there is no evidence that the critical scores were set at an inordinately high level by any participating college. In fact, it was found that some colleges do not require the actual scores at all, but only evidence of attainment of the equivalency certificate.

The policies of the colleges on the GED are apparently clear to most nontraditional students seeking admission. More than half of the subjects indicated that they understood their college's policy when they were seeking admission. Information on the policies was most frequently obtained from the college catalog, a relative, or the admissions office. Of the 30 subjects that were interviewed, almost all indicated that they were admitted to college as though they had a regular high school diploma. Only two students were admitted with restrictions: one involving academic probation and the other was required to take a remedial course.

GED TEST PERFORMANCE

Total Sample

There are several reasons for summarizing the test data of a group of examinees with descriptive statistics as is done in this section of the report. Descriptive statistics can be used to compare an individual's standing with a well-defined group and therefore aid in score interpretation. Descriptive statistics of test data can also be used in comparing the average scores of different groups of candidates such as males and females, blacks and whites, and college freshmen and sophomores. Such comparisons can indicate similarities and differences between the groups as well as the underlying psychological characteristics measured by the tests administered to the groups.

Descriptive statistics of GED scores, including frequencies, means, and standard deviations, will be presented for various groups of non-traditional students. Of the 1367 individuals who participated in this study, and who enrolled in a college with GED scores, there were 1208 for whom scores on one or more of the five examinations were available. Table 3 presents the mean, standard deviation, and number of cases for each of the tests. A general notion of the achievement level of the student sample can be gained by comparison with the national norming sample, consisting of graduating high school seniors who were tested with the GED in 1967. The norming sample has a mean of 50 and a standard deviation of 10 on each of the five examinations. The study sample

Table 3

GED Test Performance of All Students

Test	N	Mean	SD
English	1,207	50.3	7.3
Social Studies	1,206	55.4	7.9
Natural Sciences	1,208	56.1	7.2
Literature	1,204	55.7	7.7
Mathematics	1,205	53.1	7.4

performed significantly higher than the normative sample on all tests except English[4]. In interpreting these results, one needs to consider that the student sample consisted of GED candidates who have enrolled in a college through a process of self- and institutional selection. That is, candidates with low scores were less likely to apply to, or be selected by, a college. Thus, those students who enroll in college would be expected to have higher academic achievement than typical high school seniors or all GED examinees. They would also be expected to be a more homogeneous group than an unselected group of candidates. This expectation is confirmed by the relatively small standard deviations (SDs) shown in Table 3.

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[4]It should be noted that comparisons of different GED scores can be legitimately made even though the scores were obtained on different test forms. Through a procedure known as "equating" the same scores on different forms of the GED are made essentially equivalent. Thus, while all the students in the study sample did not take the same form of the GED or the same form that was taken by the normative sample, the scores can be summarized as though everyone had been in fact examined with the same form.

The average scores of the students on the five GED examinations were somewhat uneven in comparison to the norming sample. Achievement was highest in Social Studies, Natural Sciences and Literature, somewhat lower in Mathematics and lowest in English. This pattern of performance is consistent with at least one previous analysis of adult educational achievement (College Entrance Examination Board, 1968). The average scores of a large group of military personnel on the CLEP General Examinations (which cover the same subjects as the GED tests) was the highest in natural sciences and the lowest in English in comparison to a college sophomore norming sample. The older servicemen performed best in social sciences and historyand poorest in English and mathematics. Since the median age of the subjects in the present study was 28, the consistency of results of the two studies may be explained by the age factor. It may be hypothesized that the relative amount of knowledge in informal academic disciplines, such as social sciences, history and natural sciences, improves with age while there is a general decline in the more formal discipline of mathematics. Informal disciplines may be easily learned by reading books, magazines, or newspapers or by engaging in a variety of other nontraditional forms of education. Formal subjects such as mathematics, however, are difficult to learn on one's own. Furthermore, forgetting is likely to take place unless one employs the subject in the course of daily activity.

Other factors may explain the poorer performance in English. Although English may not be thought of as a highly formal subject, the formal aspects of the language, such as grammatical rules, tend to be emphasized on tests of academic achievement such as the GED. The poorer performance of the

nontraditional student on English may be because the formal aspects of English are not readily learned through the typical out-of-school educational experiences.

Type of Institution

The means and standard deviations of the students on the GED tests have been computed separately for those who enrolled in two-year and four-year colleges (Table 4). Not unexpectedly it can be seen that the average

Table 4

GED Test Performance by Type of College

	Two-Year College			Four-Year College		
Test	N	Mean	SD	N	Mean	SD
English	307	49.2	7.4	900	50.7	7.2
Social Studies	307	53.7	8.2	899	56.0	7.6
Natural Sciences	307	54.9	7.3	901	56.5	7.2
Literature	306	54.4	7.6	898	56.2	7.6
Mathematics	304	51.9	7.2	901	53.5	7.5

scores of the senior college students exceeded those of the junior college students on every test. It is surprising that these mean differences which ranged from 1.5 in English to 2.3 in Social Studies were not greater. Data presented by Schrader and Stewart (1971) indicates that the differences between high school graduates enrolling in two- and four-year colleges on the SAT are about .8 of a standard deviation. This difference is several times as large (in SD units) as that found here for the GED students.

Although the differences are all statistically significant, at the .01 level, they do not account for a large part of the score variance. It would not appear from these results that the four-year institutions have much higher admission standards than the two-year institutions, at least in terms of GED scores. This finding is undoubtedly related to the fact that the institutions which cooperated in the study are not highly selective.

Sex

Significant sex differences are apparent by examining the mean scores on the five GED tests presented in Table 5. Female achievement is higher

Table 5

GED Test Performance by Sex

	Male			Female		
Test	N	Mean	SD	N	Mean	SD
English	326	49.3	6.5	169	55.0	7.4
Social Studies	326	55.7	7.7	168	56.8	7.6
Natural Sciences	326	56.5	7.5	169	56.5	7.0
Literature	325	54.7	7.4	167	59.1	7.2
Mathematics	325	54.2	7.4	168	52.1	7.4

in English, Social Studies and Literature, while males score higher in Mathematics. In the Natural Sciences both groups are equally proficient. Similar sex differences in academic achievement at the high school level have been noted in other test batteries. For example, on the Scholastic

Aptitude Test, females exceed males on the verbal section but score lower than males on the mathematical section (Schrader & Stewart, 1971).

Age

Since the students participating in the study varied greatly in age, an analysis was made of the relationship between the GED test scores and age. The Pearsonian Product-Moment correlation between age and each of the GED tests is presented in Table 6. Significantly positive, but low, correlations are indicated for the English, Social Studies and Literature

Table 6

Correlations Between GED Tests and Age

Test	N	r	p
English	494	.15	.01
Social Studies	493	.12	.01
Natural Sciences	494	.04	NS
Literature	491	.19	.01
Mathematics	492	.04	NS

tests. The Natural Science and Mathematics tests do not correlate significantly with age.

Another way to view the relationship between age and academic achievement is by examining the average scores of different age groups. Table 7 compares the means and standard deviations of those under age 30 and those age 30 and older. Since the older group did not score significantly lower than the younger group on any of the tests, but rather

Table 7

GED Means and Standard Deviations
of Two Age Groups

	Under Age 30			Age 30 and Over		
Test	N	Mean	SD	N	Mean	SD
English	284	50.5	7.2	213	52.2	7.4
Social Studies	284	55.7	7.3	212	56.6	8.2
Natural Sciences	284	56.4	7.6	213	56.7	7.1
Literature	283	55.3	7.3	211	57.4	7.8
Mathematics	284	53.7	7.1	211	53.3	7.9

scored significantly higher on the English and Literature tests, it would not seem that the tests place the older candidate at a relative disadvantage. Unlike many other examinations of academic achievement, the GED tests are not speeded so that the older individual has ample time to demonstrate his knowledge.

Highest Level of Formal Education Completed

The amount of previous formal education of the students ranged from less than an elementary education to four years of high school. Most of the students had at least one year of secondary level education. Of the five GED tests, only English correlated significantly with amount of previous education (Table 8). The average scores at each grade level, which are presented in Table 9, indicate that in general there is little difference among the mean scores at each grade level. Those who withdrew from school after grade 11 scored highest on all tests. The lowest scores in English

Table 8

The Relationship Between GED Tests and Highest Level of Formal Education Completed

Test	N	r	p
English	478	.10	.05
Social Studies	477	.04	NS
Natural Sciences	478	.03	NS
Literature	476	.00	NS
Mathematics	478	.05	NS

Table 9

GED Mean Scores by Highest Level of Formal Education Completed

	Grade Level				
Test	1-8	9	10	11	12
N	47	79	141	143	68
English	49.2	49.5	51.9	53.0	50.1
Social Studies	54.8	55.9	56.2	56.8	55.8
Natural Sciences	56.6	56.3	55.7	57.4	56.5
Literature	56.3	56.3	55.9	57.0	55.6
Mathematics	53.3	52.9	53.2	53.9	54.2

and Social Studies were earned by those with an elementary education or less while the lowest scores on the three other tests were earned by three different grade level groups.

A number of different conclusions can be drawn from the foregoing results. One is that since the GED tests do not correlate with amount of high school education, they do not measure knowledge which is acquired in secondary school. This conclusion, however, may be unwarranted because most students took the GED a relatively long period of time after withdrawal from formal schooling. Forty per cent of the students indicated that they have taken the tests 10 years or more prior to the time that they completed the questionnaire (which was in most cases completed within two years of enrolling in college). Many educational experiences could have intervened in this out-of-school period and eliminated any relationship which may have existed between the GED and amount of previous formal education.

Time Since Formal Schooling

It was hypothesized that time since formal schooling correlates negatively with GED test performance. Presumably the longer the time one spends away from school the greater will be the amount of forgetting and the lower will be the test performance.

The foregoing hypothesis is not supported by the results presented in Tables 10 and 11. There is no significant relationship between any of the GED tests and time since dropping out of school. The explanation for this lack of relationship may be the same as that given for the insignificant correlation of GED with amount of previous formal education.

Table 10

The Relationship of the GED Scores to
Time Since Formal Schooling

Test	N	r	p
English	490	.01	NS
Social Studies	489	-.07	NS
Natural Sciences	490	-.07	NS
Literature	487	.05	NS
Mathematics	488	-.05	NS

Table 11

GED Mean Scores by Number of Years
Since Formal Schooling

	Years									
Test	1 or Less	2	3	4	5	6	7	8	9	10 or More
N	67	26	29	31	44	24	32	19	18	200
English	52.4	52.3	49.4	47.8	52.2	49.8	51.7	47.3	52.4	51.7
Social Studies	58.4	57.8	54.0	54.7	55.2	57.5	56.3	52.4	58.3	55.8
Natural Sciences	58.6	57.8	53.9	56.4	55.9	56.5	57.1	55.7	56.5	56.2
Literature	57.8	55.4	52.8	53.2	55.5	55.2	56.5	54.9	56.2	57.0
Mathematics	54.0	54.3	53.5	53.5	53.2	54.7	53.4	52.3	55.4	53.0

Informal educational experiences occurring in the time since formal schooling could have altered any relationships that might have existed.

Nontraditional Education

Nontraditional education, broadly defined, includes a variety of places, forms, and subjects. The place where nontraditional education occurs can be at home, military services, business and industry, churches, museums and in various other primarily noneducational organizations. The form of nontraditional education can be independent study, such as reading books, magazines, and newspapers, or any type of study that does not take place in the traditional classroom setting, such as correspondence and television instruction. The subject matter studied could be the same as that offered in the traditional classroom or it could be job-related, recreational or religious.

The number of candidates who have indicated that they received informal education at various places and their mean test scores are presented in Table 12. The most frequent place of nontraditional education was the Armed Services, followed by High School Adult Education Centers, Private Business, and Technical or Trade Schools. Test achievement was generally highest for those who were informally educated in private business and lowest for those who received informal education in the Armed Services. It should not be concluded from these results that the place of informal education necessarily affects level of test performance. It is more likely that individuals at a given level of ability are more likely to be selected, or select themselves, to one place rather than another.

Table 12

GED Mean Scores by Major Place of Informal Education

Place	N	Test				
		English	Social Studies	Natural Sciences	Literature	Mathematics
Technical or Trade School	36	50.5	55.2	56.1	54.6	52.3
Armed Services	153	48.3	54.8	55.9	54.3	53.9
Government Agency	9	47.8	56.6	56.2	56.1	51.0
Private Business	60	52.6	56.9	56.5	57.1	54.3
Church or Community Center	7	50.9	51.3	57.4	59.7	53.6
High School Adult Education Center	67	51.6	54.8	55.5	55.7	52.6
Other	66	52.6	56.2	56.4	56.8	53.3

The major form of nontraditional education also appears to be related to GED test achievement (Table 13). In considering only those forms in which a substantial number of subjects participated, the highest performance was achieved on all tests except mathematics by those attending lectures. Those who learned by correspondence had the highest scores on the mathematics test. This finding may reflect the fact that most correspondence courses are technical in nature and frequently require the use of mathematical ability.

GED test achievement in relation to type of subject area studied most outside of a formal school setting is indicated in Table 14. The pattern of mean scores for the four categories of subjects listed appears to fall

Table 13

GED Mean Scores by Major Form of Nontraditional Education

Form	N	Test				
		English	Social Studies	Natural Sciences	Literature	Mathematics
Independent Study	222	51.5	56.1	56.3	56.1	52.5
Correspondence Courses	61	50.0	56.0	56.0	55.2	54.8
Educational TV	4	52.8	51.8	56.5	56.8	56.0
On-the-Job Instruction	144	50.2	55.6	56.3	55.6	53.4
Private Lessons	4	51.5	57.3	56.8	58.3	51.0
Lectures	42	53.4	57.3	57.7	58.1	53.7
Seminars and Discussion Groups	23	52.0	54.8	54.6	56.0	53.9
Other	68	52.1	56.7	57.1	57.0	54.4

into a logical pattern. Those who studied academic subjects scored high on all tests except mathematics. Those who studied technical and job-related subjects scored highest on the Natural Sciences and Mathematics tests. Individuals who studied religious courses scored the lowest on the English, Social Studies and Natural Sciences tests.

Educational Plans

GED mean scores for groups planning to complete various levels of higher education are presented in Table 15. It was hypothesized that the

Table 14

GED Mean Scores by Type of Subject Matter
Studied Outside of a Formal School System

Type of Subject	N	Test				
		English	Social Studies	Natural Sciences	Literature	Mathematics
Technical & Job Related	210	50.5	56.3	56.9	55.8	54.3
Recreational	20	53.4	54.4	56.2	57.4	52.1
Religious	24	50.3	52.9	55.7	56.1	52.6
Academic	139	53.0	57.4	56.7	57.9	52.8
None of the Above	123	50.6	54.7	55.5	54.8	52.5

Table 15

GED Mean Scores by Educational Plans

Highest Degree Planned	N	Test				
		English	Social Studies	Natural Sciences	Literature	Mathematics
None	43	51.8	55.0	55.0	55.2	50.1
Associate	60	50.0	55.9	56.5	56.7	53.7
Bachelor's	159	51.7	56.6	56.6	56.2	54.0
Master's	138	51.7	56.6	57.2	56.8	53.7
Doctorate	38	50.3	56.5	57.7	56.8	55.7

higher an individual's test scores the higher will be his educational level of aspiration. This hypothesis is generally confirmed by the results. There is a progressive rise in scores on all tests with the exception of English from those who are not pursuing a degree to those who are planning to receive a doctorate. Surprisingly, on the English test, those who are planning to obtain doctorates scored lower than those who did not plan to get a degree or those who planned to get a bachelor's or master's degree.

ACHIEVEMENT AND ATTRITION FROM COLLEGE

Academic achievement in college has been most often measured by course grades or the Grade Point Average (GPA) which is the weighted average of grades in all previous courses taken. There are several reasons for the frequent past use of the GPA as a criterion of academic achievement in research studies. College administrators view the GPA as a relevant index of success, and they frequently use it to determine whether a student should remain in college, take advanced courses, or receive special honors. Secondly, the GPA is readily available in the files of many colleges so that little effort and expense are needed to obtain it. Finally, no other single index of college success which is clearly more relevant or acceptable than the GPA has yet been developed.

The GPA has a number of shortcomings which should be mentioned. It is not a very stable index but rather tends to change from semester to semester. Furthermore, the GPA is only a measure of academic achievement; therefore, it fails to reflect nonacademic accomplishments and certain desirable student attributes, such as ethicality, open-mindedness, and self-insight (Davis, 1964). Finally, grades may lack variability, such as would occur when a professor would give his students all A's or B's and therefore could not be easily related to predictor variables.

Grades of GED and Traditional Students

One way in which the grades of the GED students were evaluated was by comparing them to the grades of regular high school graduates attending the same colleges. Although such a comparison may seem logical and simple, a number of methodological problems have arisen in doing so. Originally,

the participating institutions were asked to select a sample of their traditional students who would be comparable in number and composition to their GED students. Since this procedure resulted in inadequate samples of traditional students, the colleges were requested to provide the average GPA of all of their students currently enrolled. Each GED student's GPA was thus compared to the mean GPA at the college which he was attending. The results of the comparison indicated that 55 per cent of the GED students had a lower average than that of all students at their college, while 45 per cent had grades equal to or higher than that of the traditional students. This comparison tends to place the GED students at a disadvantage, because the mean GPA of all traditional students is based on a larger proportion of upper level students than in the GED sample. (Upper-level students are likely to have higher GPA's than lower level students because of attrition of academically poor students.) The foregoing comparison seems to corroborate Tyler's (1954) results by which he concluded that the academic achievement of GED students is only slightly but insignificantly lower than that of regular high school graduates.

Attrition

Completion or noncompletion of a course of studies in college as represented by the attainment of a degree is an important criterion of college success which must be considered in any attempt to validate instruments of admission to college. Since the time involved in gathering this type of criterion data is relatively long, most predictive validity studies have attempted to assess whether students remained in college for a specified period of time such as one or two years.

While it is fairly easy to identify those who remain in a college, it is not so easy to identify those who drop out. Students may be inappropriately classified as dropouts when they transfer or when they temporarily withdraw from school.

Of the 1367 students who participated in the study there were 390 (or 28 per cent) who withdrew from college during the period surveyed at each college (which ranged from 6 months to 2 1/2 years). Caution should be used in interpreting these results. The withdrawals were reported by the colleges rather than by the students, and there is evidence that some students transferred to other colleges while others returned to college after being away for a semester or more. It should also be remembered that many of the GED students were attending college on a part-time basis and were considerably older than the traditional students. Older students are more likely to have family responsibilities which may limit their ability to pay for college expenses. Twenty-one per cent of the GED students as compared to only 11 per cent of the traditional students, indicated that finances were a major concern to them and were not sure that they would be able to complete college. Of the 30 students who were interviewed, 10 indicated that they dropped out of college for one or more semesters. Three of these students have returned since leaving while four were planning to return in the future. The most frequent reason for leaving college was the need to earn more money for tuition. Other reasons for withdrawal mentioned were family problems and poor academic performance. All in all, the fact that GED students remained in college during the period surveyed can be considered a fairly impressive accomplishment for a group that includes many individuals who had previously dropped out of secondary school.

Central Prediction of Grades

The use of grades as the criterion of college success made it necessary to consider the problem of different grading standards at the participating schools. Since a grade of A in one school might be equivalent to a grade of B in another school, serious error may be introduced into any prediction system that did not adjust for these differences. The simplest way of solving this problem might be to establish a separate regression system for each school. This solution, however, requires that a large enough sample of students be tested at each school so that stable regression coefficients would be established. Tucker (1963) developed a central prediction system useful for pooling data across a number of schools in order to increase the sample size for meaningful regression analysis. The central prediction system as modified by Boldt[5] can be used to compute one set of regression weights which apply to all schools. The differential grading problem is solved by introducing additive and multiplicative constants for adjusting the predicted grades in each school. These two constants are determined in part by the variability and average level of a particular school's GPA distribution. The central regression weights are determined in conjunction with the school constants such that a least squares error function is minimized. The regression weights and validity for any particular school are determined by information unique to that school and also determined by information derived from all the other schools within the system.

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[5]The derivation of the equations used in Boldt's modification and a description of the computer program is given by Briggs (1970).

The information in the system but outside of the particular school supplements and stabilizes the validity within the school so that minimum shrinkage results under cross-validation.

The GPA criterion employed in this study was for some students based on the grades received in all courses taken in a single semester; whereas for other students, it was based on grades received over as many as five semesters. Furthermore, the number of courses taken by the students within a given semester varied widely because of the large number of part-time students in the sample. Thus, the GPA might be a more reliable index of achievement for some of the students than for others.

GED Validity for Total Sample

The validities (i.e., correlations with GPA) of each of the five GED tests for all candidates for whom test scores and GPA's were available, are indicated in Table 16.

Table 16

Correlation of GED Tests with GPA
for Total Sample (N = 805)

Test	r	p
English	.31	.01
Social Studies	.35	.01
Natural Sciences	.32	.01
Literature	.36	.01
Mathematics	.31	.01

The validity coefficients are all in the .30s and are all significant at the .01 level. Correlations of this magnitude generally indicate that the test can be appropriately used for prediction of college success. The GED test validities compare favorably with those of the SAT-Verbal and Mathematical which, on the average, correlate .39 and .33 respectively with first year grades (Schrader, 1971).

Type of Institution

GED validity coefficients computed separately for students enrolled in two- and four-year institutions are indicated in Table 17. In the case

Table 17

Correlation of GED Tests with GPA
by Type of Institution

	Two-Year (N = 211)		Four-Year (N = 594)	
Test	r	p	r	p
English	.33	.01	.30	.01
Social Studies	.51	.01	.25	.01
Natural Sciences	.43	.01	.25	.01
Literature	.40	.01	.34	.01
Mathematics	.39	.01	.27	.01

of every test, the validity is higher for junior than for senior colleges. The pattern of validities is also different at the two types of institutions. Social Studies is the best predictor in the two-year colleges; whereas literature is the most predictive of success in the four-year colleges.

Because the two-year institution validities are higher than those obtained for the total sample, type of institution can be considered a moderator of the relationship between the GED and GPA. That is, when making predictions of the likely success of the GED student, the type of institution which he is attending should be taken into account in the prediction equation.

One explanation for the more accurate prediction of the success of nontraditional students at two-year colleges is that the GPA's were generally based on a smaller number of semesters at these colleges than at the four-year colleges. If this interpretation is correct, then the GED provides a better measure of abilities necessary for success on initial college courses than for higher level courses.

Another approach used to evaluate the predictive validity of the GED at two- and four-year colleges was by linear multiple correlation of various test combinations with GPA. Multiple correlation yields an estimate of the maximum correlation between a measure of success such as GPA and a best-weighted set of predictors such as the GED tests. The procedure which was used to select the specific combinations of tests is known as stepwise regression. After the combination of all five tests were correlated with GPA, the multiple correlation was recomputed on the combination of the four best predictors. The test with the lowest partial correlation with GPA was eliminated from the multiple regression at each successive step. The foregoing procedure was repeated until the single best predictor remained.

Tables 18 and 19 provide the prediction weights and multiple correlations of the GED tests with GPA in two- and four-year institutions respectively. It is apparent that the combinations of two or more tests add very little to the prediction of GPA over and above that predicted by

the most valid test (Social Studies at junior colleges, Literature at senior colleges). It should not be concluded, however, that the most valid

Table 18

Regression Weights and Multiple Correlations of GED Tests with GPA Combined Through Stepwise Regression

(Two-Year Colleges, N = 211)

Number of Tests	Regression Weights	Multiple R
5	.05 English + .89 Social Studies + .35 Natural Sciences + .12 Literature + .27 Mathematics	.53
4	.89 Social Studies + .34 Natural Sciences + .13 Literature + .26 Mathematics	.53
3	.89 Social Studies + .40 Natural Sciences + .22 Mathematics	.53
2	.91 Social Studies + .42 Natural Sciences	.52
1	Social Studies	.51

test could replace the entire battery. The results presented here are average validities and do not necessarily represent the relationship between the test scores and GPA at any particular college. Since the validity of the tests fluctuates from school to school (and most likely from curriculum to curriculum), the general pattern of validities do not necessarily represent the pattern of any single school. Results pertaining to the intercorrelation of the GED tests (which are presented in Table 24) are relevant here. The intercorrelations of the tests are substantially lower than would be expected of reliable tests measuring the same factors.

Table 19

Regression Weights and Multiple Correlations of GED Tests with GPA Combined Through Stepwise Regression

(Four-Year Colleges, N = 594)

Number of Tests	Regression Weights	Multiple R
5	.35 English - .04 Social Studies + .07 Natural Sciences + .88 Literature + .32 Mathematics	.36
4	.36 English + .06 Natural Sciences + .87 Literature + .32 Mathematics	.36
3	.36 English + .87 Literature + .33 Mathematics	.36
2	.90 Literature + .44 Mathematics	.36
1	Literature	.34

Although the tests do not provide much unique information in the prediction of GPA, it cannot be concluded that they measure the same abilities, skills or achievements.

A comparison of the prediction weights for the five-test combinations in Tables 18 and 19 suggests that somewhat different abilities are required for success at two- and four-year colleges. Social Studies is weighted the highest in the junior college but receives no weight in the senior college. On the other hand, Literature is the most heavily weighted test in the four-year colleges.

Sex

Subgrouping the GED students by sex has also been done for the purpose of raising the predictive validity of the tests. Table 20 presents the

validity coefficients computed separately for males and females which show that sex is a moderator in the prediction of GPA. It can be seen that the

Table 20

Validities of GED Tests by Sex

	Male			Female		
Test	N	r	p	N	r	p
English	239	.46	.01	125	.48	.01
Social Studies	239	.35	.01	124	.45	.01
Natural Sciences	239	.41	.01	125	.44	.01
Literature	239	.45	.01	124	.55	.01
Mathematics	238	.41	.01	125	.42	.01

validities are higher for the females for every test. This result is consistent with findings of several previous studies which showed that female success in college is more predictable than that of males (Seashore, 1962). A possible explanation is that female motivation for academic study is more homogeneous than that of males, thus minimizing the error of prediction from ability. A male, on the other hand, may not perform in college at a level consistent with his ability because of low motivation.

Age

Since maturity and motivation may play a more important role in the college achievement of the older candidate, it was hypothesized that sub-grouping on the basis of age may raise the predictive accuracy of the GED tests. Table 21 indicates that age is an effective moderator in the

prediction of GPA. The validity coefficients for both age groups are all higher than the corresponding coefficients for the total sample as shown in Table 16. A comparison of the validities of the GED tests of the

Table 21

Validities of GED Tests for Two Age Groups

	Under Age 30			Age 30 and Over		
Test	N	r	p	N	r	p
English	190	.48	.01	153	.51	.01
Social Studies	190	.36	.01	152	.42	.01
Natural Sciences	190	.35	.01	151	.42	.01
Literature	190	.49	.01	153	.43	.01
Mathematics	190	.48	.01	151	.52	.01

under age thirty and those age thirty and over indicates that there is little difference in the predictability of these two age groups. This result was unexpected as it was assumed that the tests would be less valid for the older than for the younger candidates. Since motivation is assumed to carry greater weight in the college performance of adults, ability or previous achievement as measured by the GED tests would not be an accurate predictor of success. These findings are encouraging for the use of the GED tests with older candidates.

Prediction of Withdrawal

The prediction of who will drop out of college is a formidable task. Previous research has failed to isolate any ability or background factors

which can be used to predict withdrawal from college with more than minimal accuracy. Large scale studies by Panos and Astin (1968) and Bayer (1968) have failed to identify any measures highly related to attrition. The prediction problem exists because students leave college for a number of different reasons, only one of which is academic failure. A related problem is that there is little agreement on how to define a drop-out. In the present study, most of the withdrawals occurred within the first two years of college.

Table 22 presents the GED means and standard deviations of those who remained in college anywhere from one to five semesters (the stayins), and of the dropouts. The stayins scored an average of about one point higher

Table 22

GED Means and Standard Deviations
for Stayins and Dropouts

	Stayins (N = 854)		Dropouts (N = 350)	
Test	Mean	SD	Mean	SD
English	50.5	7.1	49.6	7.5
Social Studies	55.9	7.9	54.3	7.7
Natural Sciences	56.4	7.4	55.5	6.9
Literature	56.0	7.7	55.0	7.6
Mathematics	53.2	7.5	52.9	7.3

on the tests than the dropouts. This is not a very large difference. Another way to look at the relationship between the test scores and attrition is by the correlation shown in Table 23. Although all correlations are

significant, they are quite low. Thus, while the GED tests can predict attrition above the chance level, many erroneous predictions of withdrawal can result. Nevertheless, even the modest relationship found between the GED scores and persistence in college may be as useful as any measure which is currently available in predicting attrition.

Table 23

Correlation of GED Tests with Withdrawal or Nonwithdrawal from College

(All Students N = 1,180)

Test	r	p
English	.20	.01
Social Studies	.19	.01
Natural Sciences	.17	.01
Literature	.19	.01
Mathematics	.14	.01

THE RELATIONSHIP OF THE GED TESTS TO EACH OTHER AND TO OTHER PREDICTORS OF COLLEGE SUCCESS

Intercorrelations of the Tests

One of the desirable characteristics of a battery of tests such as the GED is that the correlation between the tests in the battery not be very high. The usefulness of separate scores from a set of tests decreases as the correlation between the scores increases. The intercorrelations of the GED tests are presented in Table 24. The correlations range from a

Table 24

Intercorrelations of the GED Tests

(N = 1203)

Tests	English	Social Studies	Natural Sciences	Literature
Social Studies	.53			
Natural Sciences	.46	.62		
Literature	.61	.64	.62	
Mathematics	.34	.45	.57	.45

low of .34 between English and Mathematics to a high of .64 between Literature and Social Studies. These correlations suggest that the tests are, to a large extent, measuring unique factors. The correlations are much lower than would be expected of highly reliable tests[6] measuring the same

[6]The reliability of all recent forms of the GED is .9 or higher (General Educational Development Testing Service, 1971).

skills or abilities. It might be noted that these intercorrelations are also lower than that between the SAT-Verbal and Mathematical tests which correlate .67 with each other (Donlon & Angoff, 1971). Thus, the reporting of five separate scores appears to be justified.

High School Grades

Previous research has shown that secondary school grades are positively related to achievement test scores for groups of high school graduates. Students who obtain good marks in their courses tend to obtain high test scores and vice versa. An attempt was made to determine whether high school grades correlate positively with the GED test scores of nontraditional students. Since most of the students participating in the study have completed at least two years of high school, they received grades in a relatively large number of courses.

The high school grade average of the GED students was obtained via the questionnaire completed by the students[7]. Table 25 indicates the percentage

Table 25

Percentages of Traditional and GED Students with Indicated High School Grade Averages

Grade Average	Traditional	GED
A+, A, A-	15%	8%
B+, B, B-	58	37
C+, C, C-	27	45
D	1	10

[7]Previous research indicates that self-reported grades are accurate indicators of actual grades (e.g., Nichols & Holland, 1963).

of students reporting various grade averages. Expectedly, the GED students have average grades considerably lower than those of the traditional students.

The relationship between GED scores and high school grades is indicated in Table 26. There is a significant negative correlation between the self-reported grades and the English, Social Studies, and Literature tests. This

Table 26

The Relationship of GED Scores to
Self-Reported Grades in Secondary School

Test	N	r	p
English	483	-.19	.01
Social Studies	482	-.13	.01
Natural Sciences	483	-.06	NS
Literature	480	-.12	.01
Mathematics	481	-.04	NS

finding, which is somewhat surprising, might be explained by the informal educational experiences which intervened in the time between leaving high school and taking the GED tests. Such experiences might have modified positive relationships that would have occurred had the tests been taken by the candidates immediately after leaving high school. Another possibility is that many of the students, who were not motivated to do well in high school, have nevertheless acquired the equivalent of a good high school education on their own.

Scholastic Aptitude Test (SAT)

Since the SAT is one of the most widely used college entrance examinations in the nation, it is desirable to know how the GED relates to this test. Table 27 presents the correlations between the GED tests and the

Table 27

Correlations of the GED Tests with the Scholastic Aptitude Test (N = 77)

Test	SAT-V	SAT-M
English	.44	.30
Social Studies	.51	.46
Natural Sciences	.44	.46
Literature	.56	.35
Mathematics	.42	.54

SAT for a group of candidates for whom all scores were available. Although all correlations are significantly positive, they are only of moderate magnitude. Since both the GED and the SAT are highly reliable tests, the correlations suggest that to a large degree they do not measure the same factors.

As would be expected, the GED mathematics test correlates the highest with SAT-Mathematical. It is somewhat surprising that the SAT-Verbal correlates higher with the GED Social Studies and Literature tests than with the GED English test. It is possible that the reading comprehension factor which weighs heavily on SAT-Verbal does not play such an important role on the GED English test.

EFFECTS OF THE GED

The effects of the GED on the nontraditional students were far-reaching. The most direct impact of the tests was that they provided the candidates access to formal higher education. All but two of the 30 students interviewed indicated that the tests' biggest impact was that they made college enrollment possible. About two out of five of the questionnaire respondents indicated that they selected the college in which they enrolled because they could be admitted on the basis of the GED tests.

The impact of the GED on the students went beyond admission to college. About one out of six students were influenced by the tests to choose a major, and about the same number stated that the tests influenced them in choosing a career. Other effects included ability to obtain a job, possibility of earning a higher income, and feelings of self-confidence and accomplishment.

A few students mentioned academic problems in college which were related to withdrawal from high school. Some students lacked the high school background knowledge that was required at their college while others felt that they had to study harder than high school graduates. The subject of mathematics was mentioned most frequently as presenting unusual difficulty. Some of the nonacademic problems associated with the GED were embarrassment about not completing high school and the low regard that some employers have for the high school equivalency certificate.

The overall reaction of the subjects towards the GED program was extremely favorable. The following quotes might summarize the general feelings of the students better than any statistical summary:

"I am teaching a grade in high school that I, myself, never attained."

"Please keep GED going and advertise! A lot of people's lives are messed up from one mistake. GED makes it so much easier to go back to school."

"The GED was a dream come true. I doubt if I would have given serious thought to attending high school for even the one year required to earn sufficient credit for a diploma. The opportunity to receive a diploma this way has definitely been the ticket to success for many others also."

SUMMARY AND CONCLUSIONS

This investigation of the GED tests had three major objectives. The first was to assess the validity of the tests for admission of nonhigh-school graduates to higher education. The second was to describe the backgrounds and experiences of nontraditional students who enroll in college on the basis of their GED test scores. The third was to identify the advantages created by the granting of the academic high school credit by means of the GED tests.

The 40 institutions of higher education which participated in the study represented those colleges accepting significant numbers of nonhigh-school graduates who scored satisfactorily on the GED tests. The institutions consisted of 12 junior colleges and 28 senior colleges, most of which were under public control and not highly selective.

The subjects of the study were 1,367 students who have taken the GED and have been admitted to the cooperating institutions. For each of the subjects, the colleges were asked to supply GED and SAT test scores (if available) and cumulative grade point average. A questionnaire on educational background, experiences with the GED, current status at college, attitudes toward a variety of issues, and future plans was mailed to each of the students. The completed questionnaire was returned by 538 students or 39 per cent of the sample. In addition, structured interviews were conducted with 30 nontraditional students on four campuses for the purpose of obtaining a comprehensive profile of the nonhigh-school graduate in college.

The average subject was a 28-year-old male veteran who learned about the GED program in the armed services. He took the tests in order to be able to enroll in a college. He was admitted to a college without any

restrictions and despite his relatively old age he had little or no problem in adjusting to college. His attitudes toward certain academic and social issues were more conservative than those of the general college student population. His formal schooling consisted of the completion of tenth grade and subsequent withdrawal from high school because of the need to earn money. His nontraditional education consisted primarily of independent study in technical and job-related subjects. He planned to obtain a bachelor's degree and to engage in a business career.

A large number of significant results have emerged from the study. The performance of the nontraditional students was significantly higher than that of graduating high school seniors on all GED tests except English. Students who enrolled in senior colleges earned slightly higher scores on all tests than those who enrolled in junior colleges. In general, little or no relationship was found between test achievement and age, amount of previous formal schooling, and amount of time since formal schooling. Low negative correlations were found between the test scores and self-reported grades in high school. Test achievement was also found to be related to place, form, and subject of nontraditional education.

The college grades of the GED students were found to be only slightly lower than those of traditional students. Although 28 per cent of the nontraditional students withdrew from college during the period surveyed, it does not appear that attrition is a more serious problem with nontraditional than traditional students.

The validities found for the GED tests in prediction of grades indicate that the tests are useful and appropriate for the selection and guidance of nontraditional students to higher education. Subgrouping students on the

basis of moderator variables such as sex, age, and type of institution can raise the predictive accuracy of the tests markedly. The validity of the GED tests for predicting withdrawal from college is significantly positive, but low.

The relatively low intercorrelations of the tests suggest that, to some extent, each test is measuring a unique skill or ability. The reporting of five separate scores is, therefore, justified. The correlations of the GED tests with the SAT, although all positive, also suggest that the two test batteries are not measuring the same factors.

The primary effect of having taken the GED by the nontraditional student sample was the elimination of a barrier to enrollment in formal higher education. The tests also affected some candidates by influencing their choice of college, major field, and career.

The results of this study suggest that the GED tests are useful for the admission and guidance of college candidates who have not formally completed high school. If the academic achievement of a candidate as reflected by his GED test score is equivalent to that of candidates who formally graduated from high school, he should be given serious consideration for admission to higher education. High school dropouts who score satisfactorily on the GED examinations are likely to earn college grades comparable to those earned by high school graduates who enroll in college.

Several recommendations for the improvement of the GED testing program have emerged from this study: (1) colleges should encourage nonhigh-school graduates to take the GED and to present satisfactory scores as evidence of ability to under-

take college-level work; (2) a greater amount of publicity on the GED should be aimed at those segments of the civilian population that are most likely to profit from taking the tests; (3) GED testing agencies should report test scores and interpretive information to all examinees; and (4) the issuance of equivalency certificates might be accompanied by summaries of studies such as this one in order to encourage candidates to continue their formal education.

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APPENDIX 1

Participating Institutions

Participating Four-Year Institutions

Atlantic Union College (Massachusetts)

Colorado State College

East Tennessee State University

Guilford College (North Carolina)

Idaho State University

Indiana University

- Bloomington Campus
- Fort Wayne Campus
- Gary Campus
- Indianapolis Campus
- Jeffersonville Campus
- Kokomo Campus
- South Bend Campus

Montclair State College (New Jersey)

New Mexico State University

Rhode Island College

Rutgers University (New Jersey)

- Camden Division
- Jersey City Division
- New Brunswick Division
- Newark Division
- Paterson Division

Salem College (West Virgina)

Southern Illinois University--Carbondale

Tri-State College (Indiana)

University of Maine--Farmington

University of Missouri--St. Louis

Weber State College (Utah)

Western Washington State College

West Virginia University

Participating Two-Year Institutions

American River College (California)

Bristol Community College (Massachusetts)

Eastern Arizona College

Kirkwood Community College (Iowa)

Lenoir Community College (North Carolina)

Miami-Dade Junior College (Florida)

North Campus
South Campus

Mount Wachusett Community College (Massachusetts)

North Iowa Area Community College

Quinsigamond Community College (Massachusetts)

Sandhills Community College (North Carolina)

Surry Community College (North Carolina)

APPENDIX 2

GED Student Questionnaire

TM 001 424

ED 064305

TESTS OF GENERAL EDUCATIONAL DEVELOPMENT

Student Information Form
(Please Print)

Your Name _____
(last) (first) (initial)

College or University _____

Present Address (at college) _____
(street)

_____
(city) (state) (zip code)

Date of Birth ☐☐ ☐☐ ☐☐

Social Security Number ☐☐☐-☐☐-☐☐☐☐

The information on this form is being collected as part of a research study on the Tests of General Educational Development (GED) which are used as a basis for awarding high school equivalency certificates. The study is concerned with the use of the GED Tests as an admissions instrument to institutions of higher education. Your responses will be held in the strictest professional confidence and will be used only in group summaries for research purposes.

Directions:

Most of the questions are in multiple choice form and require that you place a check (✓) to the left of each of the alternatives that applies to you. Several questions, however, require responses which should be written in the spaces provided.

Item Number 237226

PART I

1. Your sex: _____Male (1) _____Female (2)

2. Your age on last birthday_____

3. Class in college:

_____Freshman (1)

_____Sophomore (2)

_____Junior (3)

_____Senior (4)

_____Fifth year of a five-year bachelor's program (5)

_____Graduate (6)

_____Other (7)
Please specify_____

4. Are you a full-time or a part-time student this term?

_____Full-time (1)

_____About three-quarters time (2)

_____About one-half time (3)

_____About one-quarter time (4)

5. How long have you been attending the college in which you are presently enrolled?

_____0 to 6 months (1)

_____7 to 12 months (2)

_____13 to 18 months (3)

_____19 to 24 months (4)

_____More than 24 months (5)

6. Have you taken the Tests of General Educational Development?

_____Yes (1) _____No (2)

7. Have you recieved a high school equivalency certificate?

_____Yes (1) _____No (2)

8. Was a high school euqivalency certificate based on GED tests one of the requirements for your admission to college?

_____Yes (1) _____No (2) _____Don't know (3)

9. Which tests, other than the GED, have been required for your admission to college?

_____(1) Scholastic Aptitude Test (SAT or College Boards)

_____(2) American College Test (ACT)

_____(3) Other tests (specify)_____

_____(4) None were required

Indicate the extent to which the following statements are true about your experiences with the Tests of General Educational Development at the college you are now attending.

		Very True (1)	Moderately True (2)	Not at all True (3)	Does not Apply (4)
10.	I selected this college because I could be admitted on the basis of my performance on the GED tests	____	____	____	____
11.	I had no difficulty in finding out about GED from this college	____	____	____	____
12.	I understood this college's policy on GED when I was seeking to be admitted	____	____	____	____
13.	I knew the scores I obtained on the GED tests	____	____	____	____
14.	I had received interpretive information on my scores	____	____	____	____
15.	I scored as well as I expected	____	____	____	____
16.	I talked to someone at this college about my scores	____	____	____	____
17.	I was influenced by my scores on GED to continue formal higher education	____	____	____	____
18.	I was influenced by my scores on GED to choose a major	____	____	____	____
19.	I was influenced by my scores on GED to choose a career	____	____	____	____

20. How did you originally learn about the GED tests?

_____(1) Newspaper or magazine announcement

_____(2) Radio or television announcement

_____(3) College catalog

_____(4) Poster in public place

_____(5) Armed Services or U. S. Armed Forces Institute (USAFI)

_____(6) Friend or relative

_____(7) Other
Please specify_____

21. Where did you take the GED tests?

_____(1) High school testing center

_____(2) College testing center

_____(3) Military service or U. S. Armed Forces Institute (USAFI)

_____(4) Other
Please specify_____

22. How well do you feel you will do in your college courses?

_____Better than averag (1)

_____Below average (3)

_____Average (2)

_____Don't know (4)

23. Do you anticipate any difficulties of a non-academic nature as a result of not completing high school?

_____Yes (1)

_____No (2)

If yes, please explain.

24. What is the highest grade (or level) of <u>formal</u> education which you completed before you entered college?

Grades in Elementary and High School (1)	Business or Trade School (2)
_____1 - 8 (1)	_____1 (1)
_____9 (2)	_____2 (2)
_____10 (3)	_____3 (3)
_____11 (4)	_____4 (4)
_____12 (5)	

25. Before you entered college how many years had it been since you attended class in a formal school system?

_____1 or less (0)	_____3 (2)	_____5 (4)	_____7 (6)	_____9 (8)
_____2 (1)	_____4 (3)	_____6 (5)	_____8 (7)	_____10 or more (9)

26. What was the <u>major</u> <u>place</u> of your education during the time after you left a formal school system and before you entered college?

_____Home (1)

_____Technical or trade school (2)

_____Armed Services (3)

_____Government Agency (4)

_____Private Business (5)

_____Church or community center (6)

_____High school adult education center (7)

_____Other (8)

Please specify_____

27. What was the major form of your education since you left a formal school system? (check one)

_____(1) Independent study

_____(2) Correspondance courses

_____(3) Educational TV

_____(4) On-the-job instruction

_____(5) Private lessons

_____(6) Lectures

_____(7) Seminars and disucssion groups

_____(8) Other
Please specify_____

28. Which type of subject areas did you study most outside of a formal school system? (Check one)

_____(1) Technical and job-related (such as business administration, office skills, electronics, programming, advertising)

_____(2) Recreational (such as painting, music appreciation)

_____(3) Religious

_____(4) Academic (such as foreign languages, mathematics, English literature, history, science, psychology)

_____(5) None of the above

29. Do you feel that your education outside of a formal school system has helped you to obtain a high school equivalency certificate through the GED?

_____(1) Definitely not

_____(2) Probably not

_____(3) Probably yes

_____(4) Definitely yes

30. Have you ever attended as a full-time or part-time student in a college or university prior to this semester?

_____(1) Yes

_____(2) No

31. What is your current military status?

_____(1) Have not served in the Armed Forces

_____(2) Presently in the Armed Forces - non-career

_____(3) Presently in the Armed Forces - career

_____(4) Veteran

32. Why did you drop out of school?

33. Did you experience any academic difficulties in college as a result of not completing high school?

34. To what do you attribute your success in obtaining a high school equivalency certificate?

PART II

1. What was your average grade in secondary school? (Check one)

_____A or A+ (1)	_____B (4)	_____C (7)
_____A- (2)	_____B- (5)	_____D (8)
_____B+ (3)	_____C+ (6)	_____Don't know (9)

2. To how many colleges other than this one did you actually apply for admission? From how many did you receive acceptances? (Check one in each column)

	Applications (a)	Acceptances (b)
No other	_____(0)	_____(0)
One	_____(1)	_____(1)
Two	_____(2)	_____(2)
Three	_____(3)	_____(3)
Four	_____(4)	_____(4)
Five	_____(5)	_____(5)
Six or more	_____(6)	_____(6)

The following questions deal with accomplishments that might possibly apply to your high school years. Do not be discouraged by this list; it covers many areas of interest and few students will be able to say "Yes" to many items. (Check all that apply)

	Yes
3. Was elected president of one or more student organizations (recognized by the school)	_____(1)
4. Received a high rating (Good, Excellent) in a state or regional music contest	_____(1)
5. Participated in a state or regional speech or debate contest	_____(1)
6. Had a major part in a play	_____(1)
7. Had a varsity letter (sports)	_____(1)
8. Won a prize or award in art competition	_____(1)
9. Edited the school paper, yearbook, or literary magazine	_____(1)
10. Had poems, stories, essays, or articles published	_____(1)
11. Participated in a National Science Foundation summer program	_____(1)
12. Placed (first, second, or third) in a state or regional science contest	_____(1)
13. Was a member of a scholastic honor society	_____(1)
14. Won a Certificate of Merit or Letter of Commendation in the National Merit Program	_____(1)

15. What is the highest academic degree that you intend to obtain?

_____(1) None

_____(2) Associate (or equivalent)

_____(3) Bachelor's degree (B.A., B.S.)

_____(4) Master's degree (M.A., M.S.)

_____(5) Ph.D. or Ed.D.

_____(6) M.D., D.D.S., or D.V.M.

_____(7) LL.B. or J.D.

_____(8) B.D.

_____(9) Other

16. Do you have any concern about your ability to finance your college education? (Check one)

_____(1) None (I am confident that I will have sufficient funds)

_____(2) Some concern (but I will probably have enough funds)

_____(3) Major concern (not sure I will be able to complete college)

Through what source do you intend to finance the first year of your undergraduate education? (Check one in each row)

		Major Source (1)	Minor Source (2)	Not a Source (3)
17.	Personal savings and/or employment	_____	_____	_____
18.	Parental or other family aid	_____	_____	_____
19.	Repayable loan	_____	_____	_____
20.	Scholarship, grant, or other gift	_____	_____	_____
21.	Veteran's benefits	_____	_____	_____

22. What is the highest level of formal education obtained by your parents? (Check one in each column)

	Father (a)	Mother (b)
Grammar school or less	_____(1)	_____(1)
Some high school	_____(2)	_____(2)
High school graduate	_____(3)	_____(3)
Some college	_____(4)	_____(4)
College degree	_____(5)	_____(5)
Postgraduate degree	_____(6)	_____(6)

23. What is your racial background?

_____(1) American Indian

_____(2) Caucasian (white)

_____(3) Negro

_____(4) Oriental

_____(5) Other

24. Check one in each column:

	Religion in Which you Were Reared (a)	Your Present Religious Preference (b)
Protestant	_____(1)	_____(1)
Roman Catholic	_____(2)	_____(2)
Jewish	_____(3)	_____(3)
Other	_____(4)	_____(4)
None	_____(5)	_____(5)

25. How would you rate the academic standards of your high school? (Check one)

_____(1) Very high

_____(2) Fairly high

_____(3) About average

_____(4) Probably below average

_____(5) Definitely below average

26. Where did you rank academically in your high school graduating class? (Check one)

_____(1) Top 1%

_____(2) Top 10%

_____(3) Top Quarter

_____(4) 2nd Quarter

_____(5) 3rd Quarter

_____(6) 4th Quarter

_____(7) Don't know

_____(8) I did not graduate from high school

27. Where did you live for <u>most of the time</u> while you were growing up?

_____(1) On a farm

_____(2) In a small town

_____(3) In a moderate size town or city

_____(4) In a suburb of a large city

_____(5) In a large city

What is your best guess as to the chances that you will: (check one row for each question)

		Very Good Chance (1)	Some Chance (2)	Very Little Chance (3)	No Chance (4)	Does Not Apply (5)
28.	Get married while in college?	____	____	____	____	____
29.	Get married within a year after college?	____	____	____	____	____
30.	Obtain an A- or better over-all grade point average?	____	____	____	____	____
31.	Change major field?	____	____	____	____	____
32.	Change career choice?	____	____	____	____	____
33.	Fail one or more courses?	____	____	____	____	____
34.	Graduate with honors?	____	____	____	____	____
35.	Be elected to a student office?	____	____	____	____	____
36.	Join a social fraternity, sorority, or club?	____	____	____	____	____
37.	Author or co-author a published article?	____	____	____	____	____
38.	Be elected to an academic honor society?	____	____	____	____	____
39.	Participate in student protests or demonstrations?	____	____	____	____	____
40.	Drop out of this college temporarily (excluding transfer)?	____	____	____	____	____
41.	Drop out permanently (excluding transfer)?	____	____	____	____	____
42.	Transfer to another college before graduating?	____	____	____	____	____

43. Which is your current home state? (Please print)

_____

44. Below is a list of 48 occupations. Enter the number of the occupation (in the boxes below) that best describes

(a) your probable career occupation ☐☐

(b) your father's present occupation ☐☐

(c) Your mother's present occupation ☐☐

NOTE: If your father (mother) is deceased, indicate his (her) last occupation.

(01) Accoutant or actuary

(02) Actor or entertainer

(03) Architect

(04) Artist

(05) Business (clerical)

(06) Business executive (management, administration)

(07) Business owner or proprieter

(08) Business salesman or buyer

(09) Clergyman (minister, priest)

(10) Clergy (other religious)

(11) Clinical psychologist

(12) College teacher

(13) Computer programmer

(14) Conservationist or forester

(15) Dentist (including orthodontist)

(16) Dietitian or home economist

(17) Engineer

(18) Farmer or rancher

(19) Foreign service worker (including diplomat)

(20) Housewife

(21) Interior decorator (including designer)

(22) Interpretor (translator)

(23) Lab technician or hygienist

(24) Law enforcement officer

(25) Lawyer (attorney)

(26) Military service (career)

(27) Musician (performer, composer)

(28) Nurse

(29) Optometrist

(30 Pharmacist

(31) Physician

(32) School counselor

(33) School principal or superintendent

(34) Scientific researcher

(35) Social worker

(36) Statistician

(37) Therapist (physical, speech occupational)

(38) Teacher (elementary)

(39) Teacher (secondary)

(40) Veterinarian

(41) Writer or journalist

(42) Skilled trades

(43) Other

(44) Undecided

(45) Laborer (unskilled)

(46) Semi-skilled worker

(47) Other occupation

(48) Unemployed

45. Below is a list of 66 different undergraduate major fields grouped into general categories. Enter the number of the major field (in the boxes below) which is

(a) your first choice (your probable major field of study) ☐☐

(b) your second choice ☐☐

(c) least appealing to you ☐☐

Arts and Humanities

(01) Architecture
(02) English (literature)
(03) Fine Arts
(04) History
(05) Journalism (writing)
(06) Languages (modern)
(07) Language (other)
(08) Music
(09) Philosophy
(10) Speech and drama
(11) Theology
(12) Other

Biological Science

(13) Biology (general)
(14) Biochemistry
(15) Biophysics
(17) Zoology
(18) Other

Business

(19) Accounting
(20) Business Administration
(21) Electronic data processing
(22) Secretarial studies
(23) Other

Engineering

(24) Aeronautical
(25) Civil
(26) Chemical
(27) Electrical
(28) Industrial
(29) Mechanical
(30) Other

Physical Science

(31) Chemistry
(32) Earth science
(33) Mathematics
(34) Physics
(35) Statistics
(36) Other

Professional

(37) Health Technology (medical, laboratory, dental)
(38) Nursing
(39) Pharmacy
(40) Predentistry
(41) Prelaw
(42) Premedical
(43) Preveterinary
(44) Therapy (physical, speech, occupational)
(45) Other

Social Science

(46) Anthropology
(47) Economics
(48) Education
(49) History
(50) Political Science (government, int. relations)
(51) Psychology
(52) Social work
(53) Sociology
(54) Other

Other Fields

(55) Agriculture
(56) Communications (radio, T.V.)
(57) Electronics (technology)
(58) Forestry
(59) Home Economics
(60) Industrial Arts
(61) Library Science
(62) Military Science
(63) Physical education and recreation
(64) Other (technical)
(65) Other (nontechnical)
(66) Undecided

Indicate the importance to you personally of the following persons or events in your decision to enroll in this college. (check one for each item)

		Major Influence (1)	Minor Influence (2)	Not Relevant (3)
46.	Parent or other relative	____	____	____
47.	High school teacher or counselor	____	____	____
48.	Friends attending this college	____	____	____
49.	Graduate or other representative from this college	____	____	____
50.	Professional counseling or college placement service	____	____	____
51.	Athletic program of the college	____	____	____
52.	Other extracurricular activities	____	____	____
53.	Social life of the college	____	____	____
54.	Opportunity to live away from home	____	____	____
55.	Low cost	____	____	____
56.	Academic reputation of the college	____	____	____
57.	Most of the students are like me	____	____	____
58.	Religious affiliation	____	____	____

Indicate the importance to you personally of each of the following: (check one for each item)

		Essential (1)	Very Important (2)	Somewhat Important (3)	Not Important (4)
59.	Becoming accomplished in one of the performing arts (acting, dancing, etc.)	____	____	____	____
60.	Becoming an authority on a special subject in my subject field	____	____	____	____
61.	Obtaining recognition from my colleagues for contributions in my special field	____	____	____	____
62.	Becoming an accomplished musician (performer or composer)	____	____	____	____
63.	Becoming an expert in finance and commerce	____	____	____	____
64.	Having administrative responsibility for the work of others	____	____	____	____
65.	Being very well-off financially	____	____	____	____
66.	Helping others who are in difficulty	____	____	____	____
67.	Participating in an organization like the Peace Corps or Vista	____	____	____	____
68.	Becoming an outstanding athlete	____	____	____	____

		Essential (1)	Very Important (2)	Somewhat Important (3)	Not Important (4)
69.	Becoming a community leader	____	____	____	____
70.	Making a theoretical contribution to science	____	____	____	____
71.	Writing original works (poems, novels, short stories, etc.)	____	____	____	____
72.	Never being obligated to people	____	____	____	____
73.	Creating artistic work (painting, sculpture, decorating, etc.)	____	____	____	____
74.	Keeping up to date with political affairs	____	____	____	____
75.	Being successful in a business of my own	____	____	____	____
76.	Developing a meaningful philosophy of life	____	____	____	____

Check one in each row:
Agree strongly
Agree somewhat
Disagree somewhat
Disagree strongly

		Agree Strongly (1)	Agree Somewhat (2)	Disagree Somewhat (3)	Disagree Strongly (4)
77.	Students should have a major role in specifying the college curriculum	____	____	____	____
78.	Scientists should publish their findings regardless of the possible consequences	____	____	____	____
79.	Realistically, an individual person can do little to bring about changes in our society	____	____	____	____
80.	College officials have the right to regulate student behavior off campus	____	____	____	____
81.	The chief benefit of a college education is that it increases one's earning power	____	____	____	____
82.	Faculty promotions should be based in part on student evaluation	____	____	____	____
83.	My beliefs and attitudes are similar to those of most other students	____	____	____	____
84.	Student publications should be cleared by college officials	____	____	____	____
85.	Marijuana should be legalized	____	____	____	____
86.	Current levels of air pollution in large cities justify the use of drastic measures to limit the use of motor vehicles	____	____	____	____
87.	Urban problems cannot be solved without huge investments of Federal money	____	____	____	____
88.	Cigarette advertising should be outlawed on radio and T.V.	____	____	____	____

	Agree Strongly (1)	Agree Somewhat (2)	Disagree Somewhat (3)	Disagree Strongly (4)
89. College officials have the right to ban persons with extreme views from speaking on campus	____	____	____	____
90. Only volunteers should serve in the armed forces	____	____	____	____
91. Students from disadvantaged social backgrounds should be given preferential treatment in college admissions	____	____	____	____
92. Most college officials have been too lax in dealing with student protests on campus	____	____	____	____

APPENDIX 3

GED Interview Schedule

ED 064306

GED Interview

STUDENT REACTIONS TO

GED TESTS AND THEIR COLLEGE EXPERIENCES

Project being conducted by
Educational Testing Service for the
Commission on Accreditation of Service Experiences

1969 - 1971

TM 001 425

To the Interviewer:

One of these forms should be completed for each interview. After the questions, some of the expected answers are indicated. Where this occurs and one of the answers is appropriate, it can be circled, checked, or underlined. Otherwise, write the person's response in the space provided in not more than one sentence, if possible. Since the interview will be taped, listen to the tape as soon as possible after the interview and write out a more detailed answer to each of the questions. If you need more space than is provided, complete the answer on the opposite blank page and identify the response by number. All of the people you will talk with have taken the GED test. Note that, for your convenience, all questions have been underlined.

Suggested lead-in for interview:

"Good morning (afternoon), my name is _____. I am here from Educational Testing Service to conduct a series of interviews with college students who have taken the GED tests which are used to award high school equivalency certificates. Summaries of the interview responses will be transmitted to the American Council on Education, the organization which manages the GED Program, and they will in turn use these suggestions in determining appropriate program modifications.

"Some of the questions I am going to ask you are personal. If any of them are too personal, you may feel free to decline and we will proceed to the next question. I wish to emphasize, however, that the summary of interview responses will in no way identify you with your responses.

"The interview is being recorded so that I can later be sure of having a record of your complete response to each question. The recording will be erased immediately after a written record of your interview is compiled. Remember, anything you tell me in this interview will be held in the strictest confidence and will never be identified with you by name."

General Information:

(Some of this information will be filled in prior to the interview from our records or those of the college. Some will need to be verified during the interview.)

Name of Institution _____

Student's Name _____

Sex: M F Age: _____

Class: Freshman, Sophomore, Junior, Senior, Graduate, Don't Know,

Other (specify) _____

Marital Status: Single, married, divorced, separated, widowed

Major field or probable major _____

Are you currently employed either full-time or part-time? Yes No

If no, specify _____ (student, howsewife, retired, disabled)

If yes, approximately how many hours a week do you work? _____

What is your job? _____

How many people are dependent on you? _____

Comments:

1. When did you take the GED test? _____ (as specific as possible)

   Did you take the GED test more than once? Yes No

2. What made you decide to take the GED test?

3. What do you think the overall effect of taking the GED tests has been (or what you expect it will be) for you. What was good or not so good about it? (Check what is volunteered in order of remarks, if possible.)

   Able to go to college

   Able to get a job requiring a high school diploma

   Influence career choice or vocational plans? How?

   Help or hinder transition to college? How?

   Able to increase income? How?

   Other

4. Has taking the GED caused you any problems?

Academic (having to repeat work, effect on GPA)

Extracurricular

Social

With college administration

With prospective employers

Other

5. If a friend who did not complete high school considered taking the GED tests, how would you advise him?

Take test Don't take test

Why?

6. If a friend who did not complete high school was accepted by a college with a high school equivalency certificate, what advice would you give him?

Why?

7. Did you prepare for the GED tests in any way? Yes No

   If yes, how did you prepare for each of them? (Correspondence course, adult education, job training, educational TV, management training, military service, community organization, church organization, work experience, independent study)

   English

   Mathematics

   Social Studies

   Natural Sciences

   Literature

8. To what do you attribute your success in obtaining a high school equivalency certificate? (Correspondence course, adult education, job training, educational TV, management training, military service, community organization, church organization, work experience, independent study)

9. Did you feel adequately prepared for the GED tests? Yes No

   Were there areas you wish that you had studied more fully? (English, mathematics, social studies, natural sciences, literature)

10. How well did you do on the tests? (better than expected, as good as expected, worse than expected) If interviewee remembers scores, write them down also.

11. In what areas was your preparation particularly strong? (English, mathematics, social studies, natural sciences, literature)

Particularly weak?

12. When you entered college, did you feel that you had more academic knowledge than the typical entering freshman?

Yes No

If yes, did you attempt to receive college credit or placement?

Yes No

How?

13. Do you think your taking the GED tests affected your chances of admission to the college of your choice?

Yes No

If yes, how?

14. What are your future plans?

College

Graduate School

Career Plans

Other

15. Were the plans which you just described influenced by your GED test results?

Yes No

How?

Educational Experiences:

Perhaps we can go back now and talk more specifically about your preparation in high school (if any) and your transition to college.

16. What was your grade level when you left school?

1 2 3 4 5 6 7 8 9 10 11 12

17. Why did you withdraw from (high) school?
(poor grades, marriage, help support family, lack of ambition)

18. Did anyone discuss with you how not completing high school might influence your college experience?

Yes No

Who? (parent, teacher, friend)

What did they say?

19. Did you know this college's policy on the GED before you applied?

Yes No

Before you entered? Yes No

What is the policy?

20. How did you find out about the policy?

Was it difficult? Yes No

21. Were you admitted as though you had a high school diploma?

Yes No

Were any restrictions placed on you? Yes No

What restrictions?

22. Do you have suggestions for improving the college's treatment of GED candidates?

23. Were you a full-time or part-time student this term?

full-time part-time Not enrolled

If part-time, why?

If not enrolled this term, why?

24. How well did you do academically so far in college?
(excellent, good, fair, poor, very poor)

How do you compare with other students?
(better than most, better than some, same, worse than some, worse than most)

How well do you think you will do in college next year?

25. What do you estimate your average to be so far in college?

A+, A, A-, B+, B, B-, C+, C, C-, D+, D, D-, F

26. Did you participate in any extracurricular activities while in college?

Yes No

If yes, which ones?
(athletics, music, drama, social or career clubs, fraternities)

27. Since entering college, have you dropped out for any period of time?

Yes No

When?

Why did you drop out?

28. What was the most frustrating of your college experiences so far?

29. What was the most satisfying of your college experiences so far?

30. When you took the GED tests, did you have some kind of a plan for your future of which the GED was a part?

Yes No

What was that plan?

Did the GED tests help you to achieve your goal? Yes No

Has your college experience changed your plan in any way? Yes No

If yes, how?

31. Is there anything else concerning your college experiences or the GED that you would like to mention?

"Thank you very much for helping us with this research study."